

Polymer Coating-Based Contaminant Control/Elimination for Exo-S Starshade Probe, Phase I

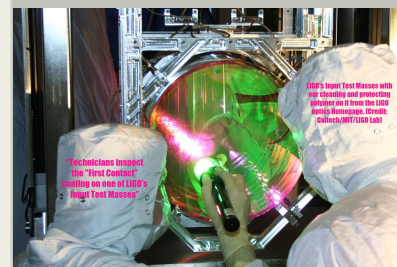
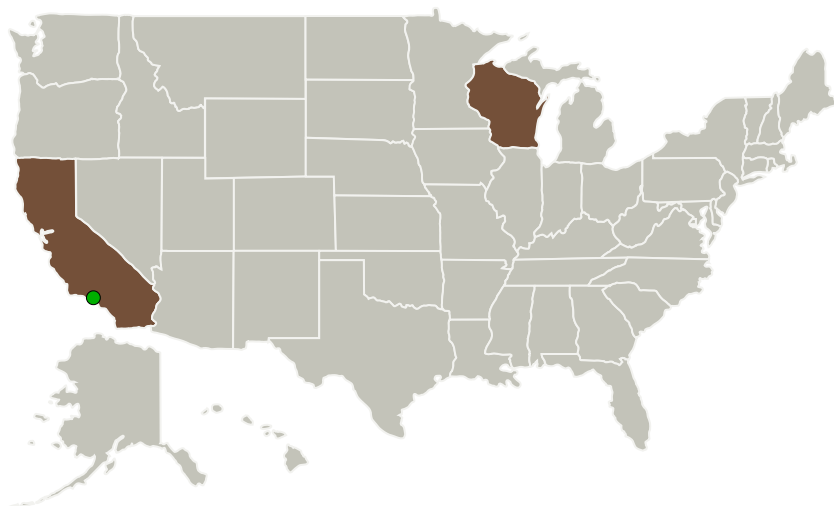
Completed Technology Project (2017 - 2017)



Project Introduction

Our past success in developing what has proven to be a revolution in contamination control — that of residue free, strippable polymer coatings for surface protection and cleaning has, so far, been limited use on substrates such as glass, fused silica and aluminum. These are the types of surfaces found on flagship projects such as the LIGO Gravitational Wave Observatory, the 10 meter class WM Keck and the GTC Gran Canarias Telescopes and the optical and mirror surfaces of the National Rocket and Missile test program exemplified by programs at Vandenberg Air Force Base where extensive data has proven our technology. However, significant hurdles exist in applying our stripcoat technology to other technologically important surfaces that are also important to NASA Programs. Anomalous adhesion of our polymer films is seen on iron, steel, copper and nickel surfaces as well as numerous other materials. Since the Starshade edges may be made of sharpened amorphous alloy or anodized black surfaces, the First Contact Polymer coatings that worked so well on JWST gold mirror surfaces and the projects above cannot be applied. Further, application and removal procedures and proof of principle metrology must be developed, verified and tested before use in the critical launch path of the Starshade. Telescope and use in Proximity Glare Suppression for Astronomical Coronagraphy.

Primary U.S. Work Locations and Key Partners



Polymer Coating-Based Contaminant Control/Elimination for Exo-S Starshade Probe, Phase I Briefing Chart Image

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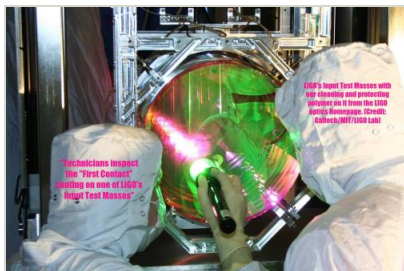


Organizations Performing Work	Role	Type	Location
Photonic Cleaning Technologies, LLC	Lead Organization	Industry Small Disadvantaged Business (SDB)	
● Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

Primary U.S. Work Locations

California	Wisconsin
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Images



Briefing Chart Image

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(<https://techport.nasa.gov/image/130122>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Photonic Cleaning Technologies, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

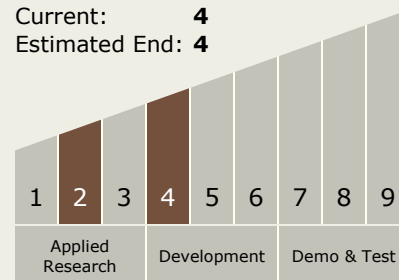
James Hamilton

Technology Maturity (TRL)

Start: 2

Current: 4

Estimated End: 4



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Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.3 Optical Components